



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,120	11/26/2001	David G. Kruger	630666.90717	6161

7590

01/20/2004

Barry E. Sammons
Quarles & Brady, LLP
411 East Wisconsin Avenue
Milwaukee, WI 53202

EXAMINER

LIN, JEYUHU

ART UNIT

PAPER NUMBER

3737

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/993,120

Applicant(s)

KRUGER ET AL. *OK*

Examiner

Jeoyuh Lin

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 11-15, and 18-28 is/are rejected.
- 7) ☒ Claim(s) 7, 9, 10, 16, 17 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Entry of Amendment

1. Applicant's amendment, filed on September 22, 2003, as paper No. 6, is acknowledged. Claims 1-29 are currently pending.

Claim Objections

2. Claim 26 is objected to because of the following informalities: In line 3, the character, "(F)V)" should be rewritten as, "(FOV)". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

-Claims 1-4, 8, 11-15, 18-23, and 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Margosian et al. (US 5,423,315)

Margosian teaches an MR imager comprising the following steps, as embodied in claims 1, 18, 22, and 26:

-Moving the subject through the MRI so that the extended field of view (the patient) passes through the defined (MR imager) field of view, as in claim 23.

- Continuously acquire NMR data from the subject as it is moved through the FOV by repeatedly performing an imaging pulse sequence which acquires NMR data comprising a field of view of the subject using a readout gradient. (Column 3, lines 60-67)
- Adjusting view acquired using position information. (Column 5, lines 20-40)
- Storing the adjusted view. (Column 6, lines 1-6)
- Reconstructing the image, as in 20. (Column 4, lines 30-35)
- Moving the table on which the patient is situated continuously, and controlling table velocity as in claims 2, 3, and 21. (Column 3, lines 60-65)
- Wherein patient movement speed can be varied, as in 4 and 21. (Column 5, lines 1-40 and column 6, lines 15-20)
- Phase encoding, which involve phase adjustment of slices obtained orthogonal to the longitudinal direction of the image, as in 8. (Column 4, lines 38-54)
- Acquiring table location information as each view is acquired, and location is used to adjust each corresponding view, as in 11. (Column 8, lines 1-15)
- Performing a Fourier transform, and calculating location in the data matrix as a function of location of patient transport, as in 12, 13, 15, 19, 27, and 28 (Column 5, lines 55-65)

Margosian fails to teach the use of a readout gradient, as in 1 and 14. However, the use of a readout gradient along the direction of the subject movement is well known in the art of MRI data acquisition while the patient is moving through the bore. In a general magnetic resonance 2d image acquisition, one commonly applies a spatial

frequency encoding gradient Gx, also known as a readout gradient during data acquisition, and a temporal phase-encoding gradient Gy during each excitation. Fourier transform is then used to decode the raw data to generate an image. Since Margosian already obtains at least a 2D MR image, with RF excitation, followed by Fourier transform (Column 5), a readout gradient is necessarily acquired.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

-Claims 5, 6, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margosian et al., (US 5,423,315) and in view of Pelc et al. (US 6,445,181 B1)

Margosian meets all the claims, and extends to blood flow imaging (Column 6, lines 60-69) except that it fails to teach injecting a subject with a contrast agent, and moving the table at a velocity which tracks the contrast agent as it moves through the extended field of view. Pelc teaches a continuous MR imaging method while "chasing the contrast agent bolus down the artery tree (Column 1, lines 40-45 and column 2, lines 1-10), and collecting data for reconstruction, effectively storing data for at least a temporary period of time (Column 3, lines 65-67). It would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt Pelc's

Art Unit: 3737

teachings to Margosian's device such that the blood vessel may be more clearly imaged by the contrast agent during continuous imaging.

Allowable Subject Matter

5. Claims 7 and 9, 10, 16, 17, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeoyuh Lin whose telephone number is (703) 306-5990. The examiner can normally be reached on m-f, 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dennis Ruhl can be reached on (703) 308-2262. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-0758.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0858.



JYL
January 9, 2004


DENNIS W. RUHL
SUPERVISORY PATENT EXAMINER